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**Datasheet for the decision
of 5 November 2024**

Case Number: T 2241/22 - 3.2.06

Application Number: 16174051.9

Publication Number: 3098396

IPC: F01D25/16, F02C7/20, F02C7/36,
F01D15/12, F16H1/28

Language of the proceedings: EN

Title of invention:
FLEXIBLE SUPPORT STRUCTURE FOR A GEARED ARCHITECTURE GAS
TURBINE ENGINE

Patent Proprietor:
RTX Corporation

Opponent:
Rolls-Royce plc

Headword:

Relevant legal provisions:
EPC Art. 100(c), 111(1)

Keyword:

Grounds for opposition - subject-matter extends beyond content
of earlier application (no)

Amendments - ranges of parameters

Remittal to the department of first instance - (yes)

Decisions cited:

G 0002/10, T 0002/81, T 1477/21, T 1170/02, T 0113/19

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 2241/22 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 5 November 2024

Appellant: RTX Corporation
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 22 July 2022
revoking European patent No. 3098396 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman T. Rosenblatt
Members: M. Dorfstätter
W. Ungler

Summary of Facts and Submissions

- I. An appeal was filed by the appellant (patent proprietor) against the decision of the opposition division revoking European Patent No. 3 098 396, which derives from a divisional application based on European patent application No. 12 170 479.5 (from here on referred to as 'the earlier application'). The opposition division found that claim 1 as granted contained subject-matter extending beyond the content of the earlier application as filed.
- II. With its statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and the patent be maintained as granted (main request), or that the patent be maintained in amended form on the basis of the first auxiliary request filed with the statement of grounds of appeal.
- III. In its reply to the appeal, the respondent (opponent) requested that the appeal be dismissed and the patent be revoked.
- IV. Both parties requested that the case be remitted to the opposition division for further prosecution if the subject-matter of either the main request or the 1st auxiliary request were found not to extend beyond the content of the earlier application.
- V. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that it considered the subject-matter of claim 1 as granted not to extend beyond the content of the earlier application. It further indicated that the Board was

inclined to remit the case to the opposition division for further prosecution, in line with the requests of both parties.

VI. Oral proceedings were held before the Board, at the end of which the parties confirmed their initial requests (see above).

VII. Claim 1 of the main request reads as follows:

"A geared architecture (48) for a gas turbine engine (20) comprising:

a fan shaft (76);

a frame which supports said fan shaft (76), said frame defines a frame transverse stiffness ($K_{\text{frame}}^{\text{BEND}}$);

a gear system (60) which drives said fan shaft (76);

a flexible support (78) which at least partially supports said gear system; and

an input coupling (62) to said gear system (60), characterised in that:

said flexible support (78) defines a flexible support transverse stiffness ($K_{\text{FS}}^{\text{BEND}}$) with respect to said frame transverse stiffness ($K_{\text{frame}}^{\text{BEND}}$) of greater than 11% and less than 20% of said frame transverse stiffness ($K_{\text{frame}}^{\text{BEND}}$); and

said input coupling (62) defines an input coupling transverse stiffness ($K_{\text{IC}}^{\text{BEND}}$) with respect to said frame transverse stiffness ($K_{\text{frame}}^{\text{BEND}}$) of greater than 11% and less than 20% of said frame transverse stiffness ($K_{\text{frame}}^{\text{BEND}}$)."

VIII. Claim 1 of the 1st auxiliary request is further delimited over claim 1 of the main request. As it is not relevant for the instant decision, there is no need to reproduce it here.

IX. The appellant's arguments relevant to the present decision may be summarised as follows:

Claim 1 as granted did not relate to subject-matter extending beyond the content of the earlier application as filed. In particular, the range of 'greater than 11% and less than 20%' was directly and unambiguously derivable from the earlier application.

There was consistent case law on the disclosure of 'side-ranges', i.e. sub-ranges on either side of another range. The general principle was set out in T 2/81 in which the Board found that the disclosure of the quantitative range of values together with an included preferred narrower range also directly disclosed the two possible part-ranges lying within the overall range on either side of the narrower range.

Even though the earlier application in the present case lacked examples, contrary to the circumstances in case T 1170/02, there was no reason to see this as suggesting that the skilled person would not have seriously contemplated working in the claimed range. The disclosure of a specific example was not a prerequisite for a direct and unambiguous disclosure of the part-range in isolation from the broader range.

The explicitly disclosed ranges in the present case were 'below 11%' and 'below 20%'. The skilled person would not only work within the range of below 11% but clearly also seriously contemplate working within the range of 11 to 20%, because it was the only other option.

Taking 11% as a lower limit did not represent new information with respect to the disclosure of the

earlier application. The discussion in the earlier application taught the skilled person that it was desirable to minimise the relative stiffness as far as practicable, e.g. to below 11%, but that the advantages of the invention could also be obtained at a higher relative stiffness above 11%, up to 20%, which might be easier to achieve but still represented a significant minimisation of the stiffness.

X. The respondent's arguments relevant to the present decision may be summarised as follows:

Claim 1 as granted defined subject-matter extending beyond the content of the earlier application as filed.

The sub-range of '11 to 20%' was not disclosed in the earlier application as filed in isolation. It was thus not permissible to claim it in isolation as this equated to an inadmissible intermediate generalisation.

The circumstances in T 2/81 were not comparable to the position in the present case. In particular, in the present case, the value of 11% changed from an upper limit to a lower limit and a once open-ended range changed to a closed range.

It was for the patent proprietor to show a 'clear and unambiguous' disclosure in the earlier application as filed, if the 'gold standard' were to be met.

Despite the headnote, paragraph 2, first sentence of T 2/81, further case law showed that the mere disclosure of a general range and a more specific range lying within the general range did not always also disclose the side-ranges.

Even though the value of 11% was mentioned in the earlier application, something more was needed for considering the range of 11 to 20% as being derivable therefrom. This was expressed in the case law in several ways. Either there was the question of whether a skilled person would seriously contemplate working in the sub-range, or there was an example given within the sub-range, or there was a teaching that the general range yielded satisfactory results and the non-claimed sub-range yielded even more satisfactory results and was therefore preferred, or there was a clear consistency between the sub-ranges in the sense that both ranges served the same purpose. None of these concepts could be found in the present case however. The two ranges of 'below 11%' and 'below 20%' were described as two separate embodiments. None was preferred over the other. No example in the claimed range was given. The only embodiment of 'below 11%' lay outside the claimed range. Regarding the purpose, the range of 'below 20%' served to achieve a high flexibility and the segregation of vibrations, while the range of 'above 11%' might serve to provide a minimum stiffness in order to transfer torque, which was derivable from the statements on page 6 of the earlier application as filed. There was thus no correlation between the disclosed ranges in the sense of the case underlying T 1477/21.

Reasons for the Decision

1. *Article 100(c) EPC*

The ground for opposition under Article 100(c) EPC does not prejudice maintenance of the patent as granted. The Board concluded that the subject-matter of claim 1 of the main request does not extend beyond the content of the earlier application as filed. This is because the range of 'greater than 11% and lower than 20%' defined for both stiffness ratios in the claim's characterising portion is directly and unambiguously derivable from the earlier application, the reasons therefor being set out in the following. This finding is based on the application of the 'gold standard' and is also not inconsistent with the case law developed for side ranges and cited by the respondent, as will also be explained in the following.

- 1.1 In a first line of argument, the respondent argued that claiming the sub-range of '11 to 20%' in isolation equated to an inadmissible intermediate generalisation. This is not accepted. Limiting the general, open-ended range of 'below 20%' to the claimed range of 'between 11 and 20%' does not establish a generalisation at all. Neither the general range of 'below 20%' nor the narrower range of 'below 11%' can be considered as being 'generalised' to the claimed range. On the contrary, the claimed range is a clear limitation of the general range, whilst it is complementary to the narrower range explicitly mentioned in the earlier application as filed.

The case law developed with respect to intermediate generalisations is thus not relevant to the present case.

- 1.2 In a second line of argument, the respondent referred to T 2/81 in which the deciding Board first dealt with the disclosure of so-called 'side ranges'. With reference to *inter alia* T 1170/02, the respondent argued that, subsequently developed case law indicated that 'something more' was needed than the mere statement of numbers for a range to be derivable from an (earlier) application as filed.

This is not accepted. The test whether Article 100(c) EPC prejudices maintenance of a patent is whether the subject-matter claimed in the patent is directly and unambiguously derivable, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the earlier application as filed. This is often referred to as the 'gold standard' (see for example G 2/10, Reasons 4.3, OJ EPO 2012, 376). Any test applied by a Board of appeal in a particular case, or any of the 'further conditions' referred to by the respondent, should simply be considered as an aid in assessing the allowability of amendments, and not a substitute for the gold standard which is thus to be applied directly, taking into account the individual circumstances of the case.

- 1.3 As noted above, when applying the 'gold standard', the Board finds that the subject-matter of claim 1 is disclosed in the earlier application as filed.

It was uncontested by the parties that both ranges 'below 20%' and 'below 11%' are directly and

unambiguously disclosed in the earlier application as filed. Already by this disclosure alone, the Board concludes that a skilled person immediately recognises the existence of the supplementary range of '11-20%' as an implicit disclosure. For a person skilled in the art, the range of '11-20%' is thus directly and unambiguously derivable from the earlier application as filed, when using common general knowledge, with no more knowledge being necessary than simple arithmetic.

This finding is also not contradicted by the case law referred to by the appellant, as will be explained below.

- 1.4 In T 2/81 (OJ EPO 1982, 394), the deciding Board found similarly. It stated in headnote 2, the following (original in German language):

"The disclosure of a quantitative range of values (e.g. for concentrations or temperatures) together with an included preferred narrower range also directly discloses the two possible part-ranges lying within the overall range on either side of the narrower range. Hence a simple combination of the preferred narrower range and one of these part-ranges is also unequivocally derivable and is supported by the disclosure."

The respondent argued that the first sentence did not express a principle generally applicable to the disclosure of side-ranges in isolation from the disclosure of the preferred ranges since it did not reflect the *ratio decidendi* of the underlying case. The case law developed subsequent to decision T 2/81 had consistently held that there had to be 'something more' than the mere disclosure of the numbers for a side-

range to be considered as being directly and unambiguously derivable, in isolation from the preferred range, from the application as filed so as to meet the 'gold standard' (as referred to in G 2/10). It referred to several decisions of the Boards of Appeal, in particular to T 1477/21 and to the respective further conditions relied on in these cases.

The question as to whether the first sentence of Headnote 2 of T 2/81 establishes a general principal or a sufficient criterion for deciding on the disclosure of a side-range or whether further conditions had to be met can however be left unanswered, as it is not relevant for deciding the present case. This is because even if the respondent's contention were accepted, the Board cannot reach a different conclusion, as will be laid out in the following.

- 1.5 The respondent referred to T 1170/02. In this decision (see Reasons 4.4), the deciding Board stated *inter alia* that it should be asked whether the range in question was directly and unambiguously derivable from the earlier application, and was consistent with it. The deciding Board explained that, in this context, subject-matter would be 'consistent' with the earlier disclosure if it contained no contradiction to the totality of the earlier disclosure.

Irrespective of the question of whether this criterion is compatible with the gold standard, in the present case the Board finds that the claimed range is not in contradiction to the totality of the disclosure of the earlier application. There is no statement anywhere in the earlier application leading to a contradiction between the ranges explicitly mentioned in the earlier application and the claimed range. The respondent also

has not shown that a contradiction arose. The respondent's further argument that there was a *potential* contradiction due to the lack of an explicit disclosure of the claimed range is not accepted. Considering unexpressed potential contradictions amounts to mere speculation.

- 1.6 In T 1170/02 (see Reasons 4.4), the Board dealing with that case further stated that it might also be useful to ask whether the skilled reader of the parent application would seriously contemplate working in the range referred to in the divisional application or alternatively whether there was anything in the parent application as filed or their common general knowledge which would cause them to exclude the possibility of working in that range.

Leaving aside the question as to whether these considerations are even compatible with the strict requirement of a direct and unambiguous disclosure (since they rather appear to belong to the framework of inventive step), the Board is unable to see any reason why a skilled reader of the earlier application would not consider working throughout the whole general range of 'below 20%', including the claimed range of '11 to 20%'. It was uncontested that the skilled person would seriously contemplate working in the range 'below 11%'. The Board concludes, however, that a skilled person would equally seriously contemplate working in the range 'between 11 and 20%', as this is the only other option when remaining within the general range of 'below 20%'. No technical reason was given by the respondent why the skilled person should not intend to work in this range.

If anything, they might refrain from working with too low a stiffness, i.e. when getting closer to 0%. It is clear that a certain minimum stiffness is needed from a technical point of view while it is equally clear that any value within the general range of 'below 20%' (but not too close to 0%) will yield the described effect of providing a low but sufficient stiffness.

1.7 The Board thus concludes that a skilled person would seriously contemplate working within the claimed range. If this were seen as a necessary condition for the claimed range being originally disclosed in the earlier application as filed, it would thus be fulfilled.

1.8 The distinction made by the opposition division in the contested decision, in item 3.2.2.4, between 'working within a range' and 'working exclusively in that range' cannot be followed. It is the function of the claims to define the subject-matter for which protection is sought. Limiting the claim by defining a narrower range means limiting the scope of protection. Consequently, to only or exclusively work in this narrower range does not give the skilled person new technical information. If anything, the skilled person is informed that protection is not sought for the remaining part of the general range. Such 'new information' must however not be equated with added subject-matter in the sense of Article 100(c) EPC (or Article 123(2) EPC or 76(1) EPC).

Therefore, the distinction made by the opposition division is not relevant in the framework of extended subject-matter but merely for the scope of protection.

1.9 The respondent further referred to decision T 1477/21. The deciding Board in that case found that there was no

clear and unequivocal correlation between the broader range and the narrower range, because it mentioned one general range and nine smaller ranges contained therein, as well as a plurality of open-ended ranges. It further found that each range mentioned was to be considered as a distinct embodiment and several values were only disclosed as a possible lower limit and could not be made the upper limit without adding subject-matter.

Leaving aside the question as to whether such correlation has to exist in order to render the side-range disclosed in the earlier application, the present case is different from the one in T 1477/21 in that it discloses a single narrower range lying entirely within the broader range. In this context, the Board also does not accept the respondent's argument that the two ranges of 'below 11%' and 'below 20%' were described as two separate embodiments. Despite being presented as alternatives connected by the conjunction 'or', it is clear that working in the range of 'below 11%' inevitably also implies working in the range of 'below 20%'. The narrower range is thus not an entirely disconnected separate and alternative embodiment but merely a limitation of the broader range.

As there is no other specific range mentioned in the earlier application, the reasoning given in T 1477/21 that the original disclosure only contained a list of ranges disclosed as separate embodiments lacking any additional technical information allowing a skilled reader to establish a relationship, or even a ranking of preference, between them, does not apply to the present case.

1.10 As to the respondent's argument that the two values of 11% and 20% were given for a different purpose in the earlier application, this is not accepted. The Board interprets the application as filed in such a way that a higher flexibility is achieved over the entire range of 'smaller than 20%'. The Board does not see a different disclosure in view of the transfer of torque being related to the value of 11% and below. That a higher stiffness is capable of transferring a higher torque is implicit, but not presented as being related to the specific value of 11% or above.

The respondent referred to page 6, first paragraph, of the earlier application as filed. However, the Board fails to see any connection between the mere mentioning of the input coupling transferring torque and the stiffness value of 11%. Whilst it is clear that a certain minimum stiffness has to be maintained for technical reasons, no explicit information in this respect is given in the earlier application or anywhere in the patent. The application only presents a single purpose of providing a particular stiffness ratio to overcome the problems of the prior art as mentioned on page 1 of the description. The statement on page 6, that the input coupling both transfers torque from the low-speed spool to the geared architecture and facilitates the segregation of vibrations and other transients therebetween, does not establish two different purposes for the values of 20% or 11% relative stiffness. It merely describes the two functions of the input coupling.

The skilled reader is thus not presented with a different reason for working above 11% than for working below 20% relative stiffness.

The respondent's further argument that even though not being explicitly mentioned, the lower limit of 11% still *might* serve a different purpose, such as providing a minimum stiffness in order to transfer torque, is not accepted. This theoretical possibility is not derivable from the application. Any purpose of the disclosed stiffness ratios other than providing flexibility amounts to pure speculation.

- 1.11 The respondent argued that in case T 113/19 the application described a general range yielding satisfactory results and a more limited range yielding very satisfactory results. The two ranges were thus mutually correlated.

The Board finds that this does not establish a difference to the present case. Other than interpreted by the respondent, the two ranges in T 113/19 were not explicitly described in the underlying patent as providing satisfactory or more satisfactory results. Nor was the narrower range described as being preferred over the general range. However, this is what the Board deciding that case derived from the application by interpretation. It concluded the following (original in French language, translation as provided by the respondent):

"The application therefore discloses a range of 10 to 15 which can be described as satisfactory and a range beyond 15 which can be described as very satisfactory" (emphasis by the Board).

The formulation 'can be described as satisfactory' (in the French original '*qu'on peut qualifier de satisfaisant*') clearly shows that the preference of one range over the other is the assessment of the Board.

This is not any different in the present case. In the Board's view, a stiffness ratio of below 20% yields a high flexibility and may thus be considered as yielding a satisfactory result, whilst a stiffness ratio below 11% may be considered to yield even higher flexibility and therefore, up to a certain limit, an even more satisfactory result.

- 1.12 The respondent further argued that there was no example given within the claimed range. This is indeed the case, but anyway not needed as all other potential further conditions, developed in the case law subsequent to decision T 2/81 and referred to by the respondent as further necessary conditions in cases like the present, are found to be met. As argued by the appellant, the disclosure of a specific example is not a prerequisite for considering a side-range disclosed. First and foremost, however, all the cited tests and conditions are merely an aid when applying the 'gold standard'. In direct application thereof, the Board also finds that the subject-matter of claim 1 of the main request is directly and unambiguously derivable from the earlier application as filed.
- 1.13 The Board thus concludes that the ground for opposition under Article 100(c) EPC does not prejudice maintenance of the patent as granted.
2. Both parties have requested that the case be remitted to the opposition division, should the Board come to such a conclusion. The Board thus decided in accordance with Article 111(1) EPC to remit the case to the opposition division for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



D. Grundner

T. Rosenblatt

Decision electronically authenticated